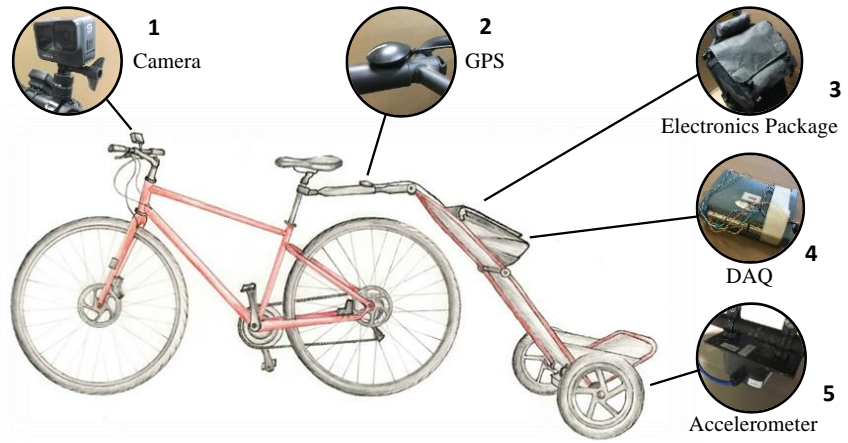


UTC Project Information	
Project Title	Measuring, Managing, and Reducing Pavement Macrotexture and Roughness to Improve Cyclists' Safety and Ride Quality
University	Oregon State University
Principal Investigator	Erdem Coleri
PI Contact Information	Erdem.coleri@oregonstate.edu
Funding Source(s) and Amounts Provided (by each agency or organization)	University of Washington PacTrans \$40,000 Oregon State University \$ 40,000
Total Project Cost	\$80,000
Agency ID or Contract Number	69A3551747110
Start and End Dates	March 16, 2021-March 15, 2022
Brief Description of Research Project	<p>According to recent research studies (Circella et al., 2016), travel behavior of young adults has started to significantly change within the last decade and non-motorized means of transportation have started to be used more often.</p> <p>Surface texture and roughness of bikeways directly affect the bicyclists' ride quality (Li et al., 2013). Texture and/or roughness requirements for bike paths and shoulders need to be established to improve cyclists' comfort. Aggregate embedment depth and macrotexture for chip seals need to be controlled during construction to achieve smoother pavement surfaces that are more suitable for bicycles.</p> <p>This research would have three objectives: i) determine the impact of pavement-related factors on cyclists' ride quality; ii) identify routes with lower ride quality; and iii) provide suggestions and guidelines to improve user comfort.</p>

Describe Implementation of Research Outcomes (or why not implemented)

Place Any Photos Here

This was a proof-of-concept study. Implementation was not within the scope of this study. Additional funding is needed for implementation and expanding the scope.



<p>Impacts/Benefits of Implementation (actual, or anticipated)</p>	<p>In this study, a pavement data collection system (with GPS and camera components) that can be installed on bicycles was developed to collect bikeway surface texture, roughness, and distresses. Based on the correlations between collected pavement data and cyclists' perception of ride quality (determined from the surveys that will be conducted with the cyclists), the effectiveness of the developed automated bikeway condition measurement system in identifying user comfort was determined. Suggestions for pavement design and construction stages were also provided to reduce rolling resistance on shoulders and bikeways.</p> <p>Implementation of the developed system and the suggested procedures are expected to improve the methods used for monitoring the performance of bike paths and provide more robust ways for pavement maintenance and rehabilitation. In this way, the rolling resistance and roughness of the bike paths are expected to be reduced. Reduced rolling resistance is expected to improve cyclists' safety and comfort and encourage the use of bicycles for recreational purposes and as a mode of transportation in the Pacific Northwest.</p>
<p>Web Links</p> <ul style="list-style-type: none"> • Reports • Project Website 	